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Monday, October 12, 2009

The tax collector's problem

Here's an edited excerpt from my old essay "Measuring Value":

Tax collection is the most efficient department of government. Its efficiency rivals that of many private sector institutions.

From the point of view of many taxpayers this is an incredible claim, given that tax collectors take money we ourselves know how to spend quite well, thank you, and often spend it on amazingly wasteful activities. And the rules by which they take it often seem quite arbitrary. Tax rules are usually complex but nevertheless fail to let us account for many events important to the earning of our incomes that differentiate us from other taxpayers.

How the money gets spent is quite outside the scope of my claim that tax collectors are uncommonly efficient. It is the collection process itself that is the subject of that claim, and the tax collection rules. This essay will demonstrate the efficiency of tax collector's rules by two arguments:

(1) First, we will show why tax collectors have an incentive to be efficient (and what "efficiency" means in this context)

(2) Second, we will explore the problem of creating tax rules, and see how the difficulty of measuring value rears its ugly head. Tax rules solve the value measurement problem through brilliant, often very non-obvious solutions similar to solutions developed in the private and legal sectors. Often (as, for example, with accounting) tax collectors share solutions used to measure value in private relationships (such as the absentee investor-management relationship in joint stock corporations). It is in making these very difficult and unintuitive trade-offs, and then executing them in a series of queries, audits, and collection actions, that tax collectors efficiently optimize their revenue, even if the results seem quite wasteful to the taxpayer.

The tax collector's incentives are aligned with the other branches of their government in a task that benefits all associated with the government, namely the collection of their revenue. No organization of any type collects more revenue with fewer expenditures than tax collection agencies. Of course, they have the advantage of coercion, but they must overcome measurement problems that are often the same as other users of accounting systems, such as owners of large companies. It is not surprising, then, that tax collectors have sometimes pioneered value measurement techniques, and often have been the first to bring them into large scale use.

Like other kinds of auditors, the tax collector's measurement problem is tougher than it looks. Investment manager Terry Coxon has described it well[1]. Bad measures or inaccurate measurements allow some industries to understate their income, while forcing others to pay taxes on income they haven't really earned. Coxon describes the result: the industries that are hurt tend to shrink. The

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Nick Szabo

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industries that benefit pay fewer taxes than could be extracted. In both cases, less revenue is generated for the tax man than he might be able to get with better rules.

This is an application of the Laffer curve to the fortunes of specific industries. On this curve, developed by the brilliant economist Arthur Laffer, as the tax rate increases, the amount of revenue increases, but at an increasingly slower rate than the tax rate, due to increased avoidance, evasion, and most of all disincentive to engage in the taxed activity. At a certain rate due to these reasons tax revenues are optimized. Hiking the tax rate beyond the Laffer optimum results in lower rather than higher revenues for the government. Ironically, the Laffer curve was used by advocates for lower taxes, even though it is a theory of tax collection optimum to government revenue, not a theory of tax collection optimal to social welfare or individual preference satisfaction.

On a larger scale, the Laffer curve may be the most important economic law of political history. Adams[2] uses it to explain the rise and fall of empires. The most successful governments have been implicitly guided by their own incentives – both their short-term desire for revenue and their long-term success against other governments -- to optimize their revenues according to the Laffer Curve. Governments that overburdened their taxpayers, such as the Soviet Union and later Roman Empire, ended up on the dust-heap of history, while governments that collected below the optimum were often conquered by their better-funded neighbors. Democratic governments may maintain high tax revenues over historical time by more peaceful means than conquering underfunded states. They are the first states in history with tax revenues so high relative to external threats that they have the luxury of spending most of the money in non-military areas. Their tax regimes have operated closer to the Laffer optimum than those of most previous kinds of governments. (Alternatively, this luxury may be made possible by the efficiency of nuclear weapons in deterring attack rather than the increased incentives of democracies to optimize to tax collection).

When we apply the Laffer curve to examining the relative impact of tax rules on various industries, we conclude that the desire to optimize tax revenues causes tax collectors to want to accurately measure the income or wealth being taxed. Measuring value is crucial to determining the taxpayer's incentives to avoid or evade the tax or opt out of the taxed activity. For their part, taxpayers can and do spoof these measurements in various ways. Most tax shelter schemes, for example, are based on the taxpayer minimizing reported value while optimizing actual, private value. Tax collection involves a measurement game with unaligned incentives, similar to but even more severe than measurement games between owner and employee, investor and management, store and shopper, and plaintiff-defendant (or judge-guilty party).

As with accounting rules, legal damage rules, or contractual terms, the choice of tax rules involves trading off complexity (or, more generally, the costs of measurement) for more accurate measures of value. And worst of all, as with the other rule-making problems, rule choices ultimately ground out on subjective measures of value. Thus a vast number of cases are left where the tax code is unfair or can be avoided. Since tax collectors are not mind readers, tax rules and judgments must substitute for actual subjective values its judgments of what the “reasonable” or “average” person's preferences would be in the situation. Coxon provides the following example. Imagine that we wanted to optimize the personal income tax rules to measure income as accurately as possible. We might start reasoning along these lines:

> … look a little closer and you find that an individual incurs costs and expenses in earning a salary. He has to pay for transportation to and from work. He may spend money on clothes he wouldn't otherwise buy and on lunches that would cost less at home. And he may have spent thousands of dollars acquiring the skills and knowledge he uses in this work.
>
> Ideal, precise rules for measuring his income would, somehow, take all these and other costs into account. The rules would deduct the cost of commuting (unless he enjoys traveling about town early in the morning and later in the afternoon). They would deduct the cost of the clothes he wouldn't otherwise pay (to the extent it exceeds the cost of the clothes he would buy anyway). They would deduct the difference between the cost of eating lunch at work and the cost of lunch at home (unless he would eat lunch out anyway). And each year these ideal rules would deduct a portion of the cost of his education (unless he didn't learn anything useful in school or had enough fun to offset the cost).
>
> [Because there are limits to complexity, and] because tax agents can't read minds, the government gives them arbitrary

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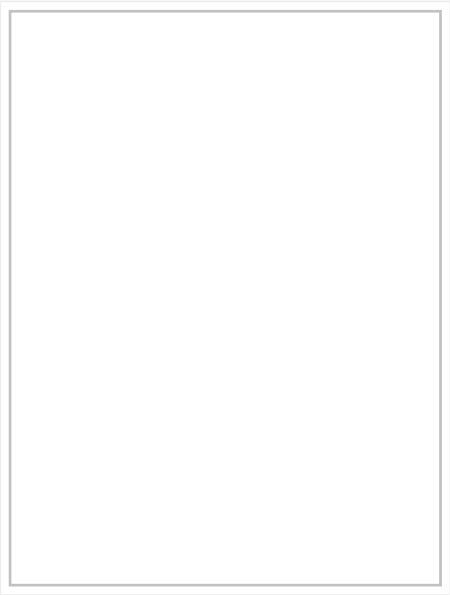
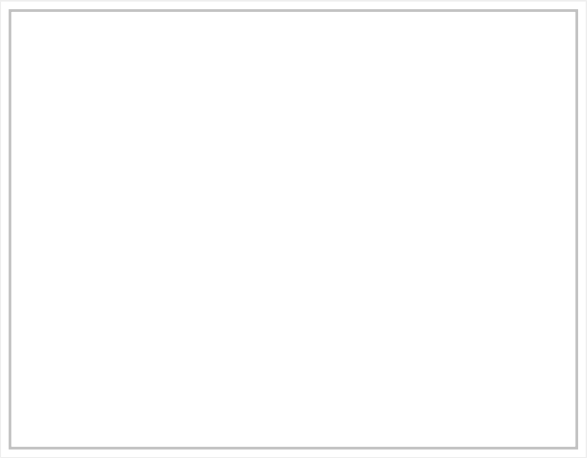
rules to follow: no deductions are allowed for commuting expenses, for clothing that is suitable for wearing outside of work, for lunches that aren't part of the “business entertainment” or for the cost of acquiring the skills a job requires (although you can deduct the cost of improving your skills).

The resulting rules often seem arbitrary, but they are not. They are trade-offs, often non-obvious but brilliant, between the costs of measuring more value with greater accuracy and extra revenue extracted thereby. However, the value measurement problem is hardly unique to tax collection. It is endemic when assessing damages in contract and tort law, and when devising fines punishments in administrative and criminal law. Many private sector rules found in contracts, accounting, and other institutions also have the quality that they use highly non-obvious measures of value that turn out, upon close examination, to be brilliant solutions to seemingly intractable problems of mind-reading and the unacceptable complexity of covering all cases or contingencies. Such measurement problems occur in every kind of economic system or relationship. The best solutions civilization has developed to solve them are in most institutions brilliant but highly imperfect. There is vast room for improvement, but failed large-scale experiments in attempts to improve these measures can be devastating.

The Laffer curve and measurement costs can also be used to analyze the relative benefits of various tax collection schemes to government. Prior to the industrial revolution, for example, the income tax was infeasible. Most taxes were on the prices of commodities sold, or on various ad-hoc measures of wealth such as the frontage of one's house. (This measurement game resulted in the very tall and deep but narrow houses that can still be found in some European cities such as Amsterdam. The stairs are so narrow that even normal furniture has to be hauled up to the upper story and then through a window with a small crane, itself a common feature on these houses).





Taxes distorted the economy of the Netherlands -- quite literally. Here are some houses in Amsterdam built in the 17th and 18th centuries, and a typical narrow staircase. Furniture and other large objects must be hauled up by the small cranes seen above the top-story windows.

Prior to the industrial revolution, incomes were often a very private matter. However, starting in England in the early nineteenth century, large firms grew to an increasing proportion of the economy. Broadly speaking, large firms and joint-stock companies were made possible by two phases of accounting advances. The first phase, double-entry bookkeeping, was developed for the trading banks and "super companies" of early fourteenth century Italy. The second phase were accounting and reporting techniques developed for the larger joint stock companies of the Netherlands and England, starting with the India companies in the seventeenth century.

Accounting allowed manager-owners to keep track of employees and (in the second phase) for non-management owners to keep track of managers. These accounting techniques, along with the rise of literacy and numeracy among the workers, provided a new way for tax collectors to measure value. Once these larger companies came to handle a sufficient fraction of an jurisdiction's value of transactions, it was rational for governments to take advantage of their measurement techniques, and they did so -- the result being

the most lucrative tax scheme ever, the income tax.

References

[1] Adams, Charles, For Good and Evil: The Impact of Taxes on Civilization

[2] Coxon, T., 1996 Keep What You Earn, Times Business/Random House

Posted by Nick Szabo at 3:03 AM

4 comments:

nazgulnarsil said...

hypothesis: whether or not a society that is taxing below the optimum can survive would seem to depend on the relative costs of offense and defense. thus when defense is cheap relative to offense we can expect freer societies since they can afford not to tax at the optimum rate for military expenditures.

4:30 AM

nick said...

Nazgulnarsil, since the optimal point for economic growth or wealth is at a tax rate well below the Laffer optimimum , one could derive as a corollary that societies with better natural defenses, and thus lower defense costs (in the days before the welfare state) would have higher economic growth (or higher population growth in the Malthusian era before the industrial revolution) per acre of arable land, and perhaps other desirable characteristics as well, such as a more libertarian legal system, and that such societies will be more more likely to conquer than be conquered. There seems to be some geographical evidence for this: countries with natural barriers of sea or mountain tended to create empires rather than be ruled under them, and tended to have better legal systems and more economic prosperity.

6:09 AM

George Weinberg said...

I never understood the GDP graph. It seems to me that GDP should always rise with decreasing taxes. I understand that government does provide some useful services and it could not do so without some revenue, but I think that useful government spending has to be considered separately from revenue.

Come to think of it, government should be seeking to maximize not total revenue but rather the amount of wealth it can spends as it pleases, with the amount spent on anything actually useful being a regrettable but necessary cost of doing business.

11:57 AM

nick said...

George, it's based on the theory that the optimal level of taxpayer-provided public goods is above zero, and probably well above

zero. A fairly straightforward example: your economic growth will be higher if taxpayers successfully fund defenses against conquest by another power that would tax you at a higher level. (This is economic growth in terms of GDP as well as actual subjective value -- I realize these two can be quite different, but this argument applies to both).

In terms of a subject trying to minimize his taxes, it pays for him to support the defense (or force his neighbors to support it through taxes) if the conqueror would tax him more than the current government. This of course reduces things down to monetary considerations -- in reality the language,law, and race of the current government versus those of the conqueror, and a variety of religious and ideological considerations also come into play.

"government should be seeking to maximize not total revenue but rather the amount of wealth it can spends as it pleases, with the amount spent on anything actually useful being a regrettable but necessary cost of doing business."

By "should" here I hope you mean "can be expected to." :-) I do wonder how much overlap there is between what "it pleases" to spend money on and actual public goods. Mostly they seem to spend to increase their control over peoples' lives and to signal their supposed altruism, which sometimes does but often does not correspond to actual public goods.

Traditionally kings and other kinds of governments also faced a kind of Darwinian pressure -- if they spent to much as they pleased and not enough on defense, they didn't survive long.

3:55 PM

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